THE **U.S. DEPARTMENT OF ENERGY'S**

NATIONAL ALTERNATIVE FUELS HOTLINE

HYDROGEN AND FUEL CELL RESOURCE GUIDE

PREPARED FOR THE U.S. DEPARTMENT OF ENERGY BY
INFORMATION RESOURCES INCORPORATED, UNDER CONTRACT TO
THE NATIONAL RENEWABLE ENERGY LABORATORY

LAST UPDATED: APRIL 30, 1997

FOR ADDITIONAL INFORMATION CONTACT THE HOTLINE
800-423-1DOE • 703-528-3500
FAX: 703-528-1953
E-MAIL: hotline@afdc.doe.gov

ASSOCIATIONS

American Fuel Cell Institute
P.O. Box 65482
Washington, DC 20035-5482
Contact: Martin Gutstein, Vice President
Phone: 301-681-3532
Fax: 301-681-4896

American Hydrogen Association
216 South Clark Street
MS 103
Tempe, AZ 85281
Contact: Roy McAlister, President
Phone: 602-921-0433
Fax: 602-967-6601

The American Hydrogen Association is a non-profit organization designed to provide public awareness and informational services on renewable energy, with emphasis on hydrogen and hythane for transportation.

American Methanol Institute
800 Connecticut Avenue, NW
Suite 620
Washington, DC 20006
Contact: Greg Dolan
Director of Communications
Phone: 202-467-5050
Fax: 202-331-9055

Staples & Associates
660 Venice Boulevard, #112
Venice, CA 90921
Contact: Paul Staples, President
Phone: 310-450-2121
Fax: 310-450-6715

International Association for Hydrogen Energy
P.O. Box 248266
Coral Gables, FL 33124
Contact: T.N. Veziroglu, President
Phone: 305-284-4666
Fax: 305-284-4792

The International Association for Hydrogen Energy was officially formed at the end of 1974 in response to the interest of many scientists and engineers involved with the development of a hydrogen-based energy system. The objective of the Association is education through coordination of worldwide individual efforts being made toward such an energy system.

National Hydrogen Association
100 Connecticut Avenue, NW
Suite 910
Washington, DC 20036-4303
Contact: Debbie Smith, NHA Consultant
Phone: 202-223-5547
Fax: 202-223-5537

Made up of members who are developing hydrogen technology for vehicles. Also publishes the *H2 Digest*, a monthly newsletter on hydrogen.

FEDERAL GOVERNMENT

National Renewable Energy Laboratory
1617 Cole Boulevard
Golden, CO 80401-3393
Contact: Kathy Gregory-Padro
Program Coordinator
Phone: 303-275-3547
Fax: 303-275-2905

Sandia National Laboratories
Combustion Research Facility
P.O. Box 969
Livermore, CA 94551-0696
Contact: Peter Van Blarigan
Engineering for Transporation
Phone: 510-294-3547
Fax: 510-294-1322

U.S. Department of Energy
Electric and Hybrid Propulsion Division
1000 Independence Avenue SW

Washington, DC 20585
Contact: Robert Kost
Advanced Technology
Phone: 202-586-2334
Fax: 202-586-1600

U.S. Environmental Protection Agency
National Vehicle & Fuel Emissions Laboratory
2526 Plymouth Road
Ann Arbor, MI 48105
Contact: Carl Helman, Manager of Technology Development & Support Group
Phone: 313-668-4246
Fax: 313-668-4212

PRIVATE COMPANIES

Ballard Power Systems
107-980 West First Street
North Vancouver BC
Canada, V7P3N4
Contact: Paul Lancaster, Vice President
Phone: 604-454-0900
Fax: 604-412-4700

Ballard developed the world's first hydrogen-powered fuel cell bus now in use by the British Columbia Transit. The prototype 20-passenger bus uses Ballard's proton exchange membrane (PEM) fuel cells to create electricity. Ballard Power Systems provided a PEM fuel cell for the Mazda HR-X prototype. Its fuel cells are also being evaluated by General Motors and Daimler-Benz.

BMW of North America, Inc.
P.O. Box 1227
Westwood, NJ 07675-1227
Contact: Thomas Zauber
Product Information Specialist
Phone: 201-307-3789
Fax: 201-573-8416

Hydrogen is part of BMW's long-term energy strategy, and the company is now in its fourth-generation of hydrogen vehicles. The current test vehicle is a 7-Series model, which has more space for the hydrogen fuel tank.

Bruderly Engineering Associates
1826 NW 57th Terrace
Gainesville, FL 32065
Contact: David E. Bruderly, President
Phone: 352-377-0932
Fax: 352-378-6326

This is a private consulting company that provides hydrogen vehicle and fuel information for a fee.

Detroit Diesel Corporation
13400 Outer Drive West
Detroit, MI 48329-4001
Contact: Stanley Miller, Manager
Phone: 313-592-5000
Fax: 313-592-7888

Energy Partners
1501 Northpoint Parkway
Suite 102
Technology Center
West Palm Beach, FL 33407
Contact: Ragtt Ross, Marketing Engineer
Lara Kimble, Marketing Manager
Phone: 407-688-0500
Fax: 407-688-9610

Energy Partners has been working on an "EP Green Car Project" which includes the construction of a hydrogen proton exchange membrane (PEM) fuel cell vehicle prototype.

Florida Solar Energy Center
1679 Clearlake Road
Cocoa, FL 32922
Contact: Ali Raissi, Hydrogen Division
Phone: 407-638-1446

Fax: 407-638-1010

The FSEC is the energy research institute of the State University System of Florida, under the administration of the University of Central Florida. The state legislature established FSEC in 1974 to conduct research on alternative energy technologies, to ensure the quality of solar energy equipment sold in Florida, and to educate people about their energy options.

Hydrogen Consultants, Inc.
12420 North Dumont Way
Littleton, CO 80125
Contact: Frank Lynch, Engineer
Phone: 303-791-7972
Fax: 303-791-7975

H-Power Corporation
60 Montgomery Street
Bellville, NJ 07109
Contact: Rene Dubois, Marketing
Phone: 201-450-4400
Fax: 201-450-9500

H-Power Corporation is developing three phosphoric acid fuel cell-powered buses.

Institute of Gas Technology
Energy Systems and Applications
1700 South Mount Prospect Road
Des Plaines, IL 60018-1804
Contact: Chris Blazek, Managing Director
Phone: 847-768-0552
Fax: 847-768-0510

LNS Associates
P.O. Box 687
Spring Green, WI 53588
Contact: Larry Krom, Project Manager
Phone: 608-588-7231
Fax: Same as Phone

REVEO, Inc.
8 Skyline Drive
Hawthorn, NY 10532
Contact: Thomas Langheird
Research & Development
Phone: 914-345-9555
Fax: 914-345-9550

PUBLICATIONS

Briefing Paper: Hydrogen Fuel Cell Vehicles
Union of Concerned Scientists
Publications Department BP
Two Brattle Square
P.O. Box 9105
Cambridge, MA 02238-9105
Subscription rate: Single copies free-additional $0.20 each.
Phone: 617-547-5552
Fax: 617-864-9405

Fuel Cell News
American Fuel Cell Association
P.O. Box 65482
Washington, DC 20035-5482
Subscription rate: $ 150/yr
Phone: 301-681-3532
Fax: 301-681-3866

Harnessing Hydrogen: The Key To Sustainable Transportation
INFORM
120 Wall Street, 16th Floor
New York, NY 10005-4001
Phone: 212-361-2400
Fax: 212-361-2412

Hydrogen & Fuel Cell Letter
P.O Box 14
Rheincliff, NY 12577
Subscription rate: $195/yr
Phone: 914-876-7599
Fax: 914-876-0596

STATE AND LOCAL GOVERNMENT

California Energy Commission
Energy Technology Development Division
Research and Development Office
1516 9th Street, MS-43
Sacramento, CA 95814-5512
Contact: Chuck Mizutani,
Technology Evaluation
Phone: 916-654-4636
Fax: 916-654-4676

UNIVERSITIES

Case Western Reserve University
Department of Chemistry
10900 Euclid Avenue
Cleveland, OH 44106-7078
Contact: Dr. Scherson, Associate Professor
Phone: 216-368-5186
Fax: 216-368-3006

Operates hydrogen demonstration vehicle.

Georgetown University
Advanced Vehicle Development Division
37th & O Streets, NW
Washington, DC 20057
Contact: James Larkins, Program Manager
Phone: 202-687-7361
Fax: 202-687-6225
Contact: Violet Simmons, Academic
Executive Assistant
Phone: 202-687-6225
Fax: 202-687-6209

Looking at methanol or natural gas as carriers reformed into hydrogen for a fuel cell bus demonstration.

Syracuse University
Department of Chemical Engineering and Material Science
220 Hinds Hall
Syracuse, NY 13244
Contact: James Schwarz, Professor
Phone: 315-443-4575
Fax: 315-443-2559

Syracuse University joined forces with Yung Technologies International, Inc. in June 1992 to work on research and development of advanced hydrogen storage technology for future hydrogen energy systems.

Texas A &M University
Office of Automotive Engineering
238 Wisenbaker ERC
College Station, TX 77843
Contact: John Applebee, Program Director
Phone: 409-845-8281
Fax: 409-845-9287

Fuel cell research.

University of California at Davis
Institute of Transportation Studies
University of California
Davis, CA 95616
Contact: Mark Deluchi, Resource Engineer
Phone: 916-752-7592
Fax: 916-752-6572

The University has ordered a fuel cell from Ballard Power Systems for a test vehicle they plan to develop.

University of California, Riverside
Center for Environmental Research and Technology
University of California
Riverside, CA 92521
Contact: Tom Derbis, Professor
Phone: 909-781-5794
Fax: 909-781-5790

Preparing a pure hydrogen vehicle and building the fuel injection system for it.

University of Miami
Department of Mechanical Engineering
P.O. Box 248294
Coral Gables, FL 33124
Contact: Michael Swain
Associate Professor
Phone: 305-284-3321
Fax: 305-284-2584

HYDROGEN PROCESSES

Steam	Raw heat, rather than electricity, applied to water can cause the same separation of H_2 and O_2.
Partial Oxidation	Commercially available process converts heavy hydrocarbons (from oil) in the presence of oxygen to hydrogen and other gases.
Coal Gasification	Coal particles are partially oxidized in the presence of water, scrubbed and separated.
Photovoltaic (PV)	PV cells can convert sunlight into electricity. The electricity electrolizes the water to produce hydrogen.
Thermo-chemical	Chemicals such as bromine or iodine in the presence of heat, can split water to produce benign fuel.
Biological	Organisms can split water as well as clean up pollution currently under investigation (SCAQMD)
Photolysis	Using sunlight to split water could encompass electrochemical, chemical, or biological techniques.
Pyrolysis of Biomass	Biomass is placed under high temperature and pressure which decomposes the organic material. During this process, several gases are released, including hydrogen.

Source: The National Hydrogen Association